DATASET
Dataset is sample data of songs heard by users on an online streaming platform. The Description of data set attached in musicdata.txt is as follows: -
1st Column - UserId
2nd Column - TrackId
3rd Column - Songs Share status (1 for shared, 0 for not shared)
4th Column - Listening Platform (Radio or Web - 0 for radio, 1 for web)
5th Column - Song Listening Status (0 for skipped, 1 for fully heard)

111115|222|0|1|0
111113|225|1|0|0
111117|223|0|1|1
111115|225|1|0|0

Task 3 : What are the number of times a song was shared.

Here we need to find the number of times which track is shared how many times.

NOTE:
The above data set is already present under haddop fs in the path “**/satya/MR/song.txt**”

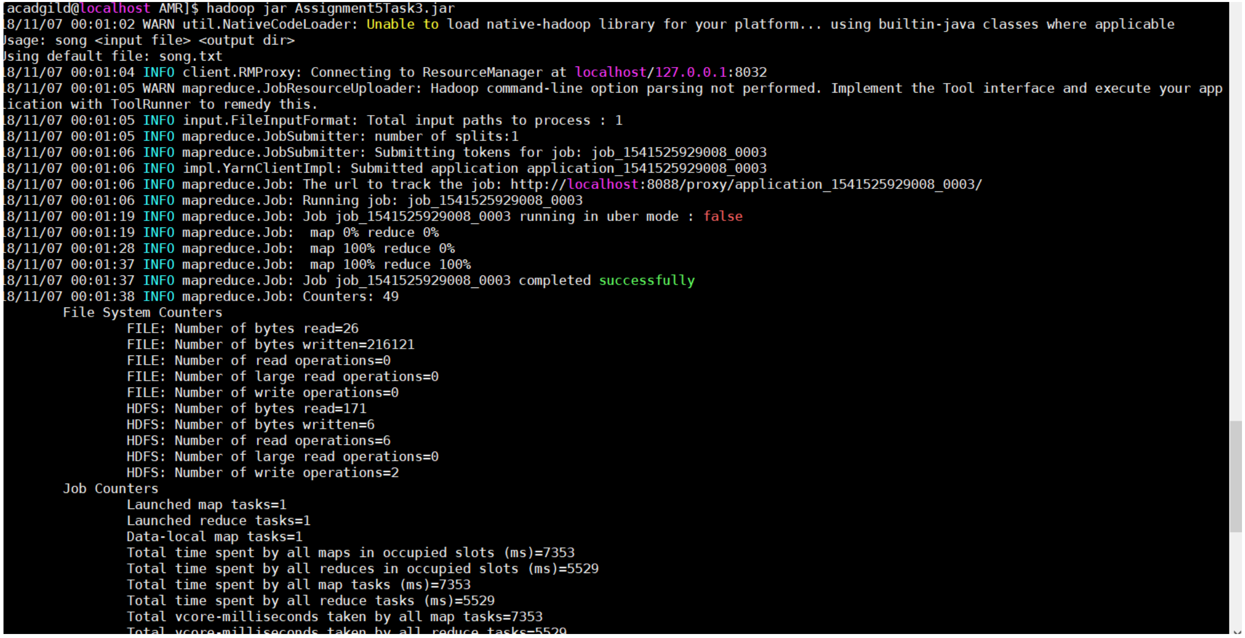
```
// Assignment5Task3.java

import java.io.IOException;

import org.apache.hadoop.conf.Configuration;
import org.apache.hadoop.fs.FileSystem;
import org.apache.hadoop.fs.Path;
import org.apache.hadoop.io.IntWritable;
import org.apache.hadoop.io.Text;
import org.apache.hadoop.mapreduce.Job;
import org.apache.hadoop.mapreduce.Mapper;
import org.apache.hadoop.mapreduce.Reducer;
import org.apache.hadoop.mapreduce.Reducer.Context;
import org.apache.hadoop.mapreduce.lib.input.FileInputFormat;
import org.apache.hadoop.mapreduce.lib.output.FileOutputFormat;


public class Assignment5Task3 {


        public static class Assignment5Task3Mapper extends Mapper<Object, Text, Text, IntWritable>{

                private final static IntWritable mapValue = new IntWritable(1);
                private Text mapKey = new Text();
        public void map(Object key, Text value, Context context) throws IOException,
InterruptedException {
            //StringTokenizer itr = new StringTokenizer(value.toString());
            //while (itr.hasMoreTokens()) {
            //word.set(itr.nextToken());
            //context.write(word, one);
            // }
            //}
            System.out.println("START#map()");
            String [] values= value.toString().split("\\|");

            if(values!=null && values.length==5) {
                String trackId = values[1];
                System.out.println("Track ID ::"+trackId);


                String shareStatus = values[2];
                System.out.println("Share Status ::"+shareStatus);

                if(trackId!=null && trackId.trim().length()>0
                        && shareStatus!=null && shareStatus.trim().length()>0
                          && Integer.parseInt(shareStatus)>0)
                {
                    System.out.println("As the condition match, so adding this to
Context Object");
                    mapKey.set(trackId);
                    context.write(mapKey,mapValue);
                }

            }
            System.out.println("END#map()");
        }
    }

    public static class Assignment5Task3Reducer extends
Reducer<Text,IntWritable,Text,IntWritable> {
        private IntWritable result = new IntWritable();

        public void reduce(Text key, Iterable<IntWritable> values,
                Context context
                ) throws IOException, InterruptedException {

            System.out.println("START#reduce()");

            int noOfTimesShare = 0;

            for (IntWritable val : values) {
                noOfTimesShare += val.get();
```

```
                        }
                        result.set(noOfTimesShare);
                        context.write(key, result);
                        System.out.println(" KEY "+key.toString() + " : Value "+noOfTimesShare);
                        System.out.println("END#reduce()");
                }
        }

         @SuppressWarnings("deprecation")
        public static void main(String[] args) throws Exception {
                 //create an instance of Configuration object
          Configuration conf = new Configuration();
          conf.addResource(new Path("/home/acadgild/install/hadoop/hadoop-
2.6.5/etc/hadoop/core-site.xml"));
                conf.addResource(new Path("/home/acadgild/install/hadoop/hadoop-
2.6.5/etc/hadoop/hdfs-site.xml"));

                //creatkeye an instance of FileSystem that holds Filesystem namespace
                 FileSystem fs = FileSystem.get(conf);



           System.out.println("Usage: song <input file> <output dir>");
           System.out.println("Using default file: song.txt");
          //variables to hold path of input file and output directory

          // HDFC FILE PATH
           String inPath = "/satya/MR/song.txt";
           String outPath = "/satya/MR/Output/Task3";
           //Normal File System
           //String inPath = "/home/acadgild/Desktop/MyDocument/read/wordcount.txt";
           //String outPath = "/home/acadgild/Desktop/MyDocument/read/WordCountOutput2";

        //create an instance of job
                try {
          Job job = new Job(conf, "Music Count Task-3");
          job.setJarByClass(Assignment5Task3.class);
          job.setMapperClass(Assignment5Task3Mapper.class);
          job.setReducerClass(Assignment5Task3Reducer.class);

          job.setNumReduceTasks(1);

          job.setMapOutputKeyClass(Text.class);
          job.setMapOutputValueClass(IntWritable.class);

          job.setOutputKeyClass(Text.class);
          job.setOutputValueClass(IntWritable.class);
        FileInputFormat.addInputPath(job, new Path(inPath));

        if (fs.exists(new Path(outPath))) {
                        fs.delete(new Path(outPath), true);
            }
        FileOutputFormat.setOutputPath(job, new Path(outPath));
        System.exit(job.waitForCompletion(true) ? 0 : 1);
            }catch(Exception e) {
                        System.out.println(e);
            }
        }

}
```

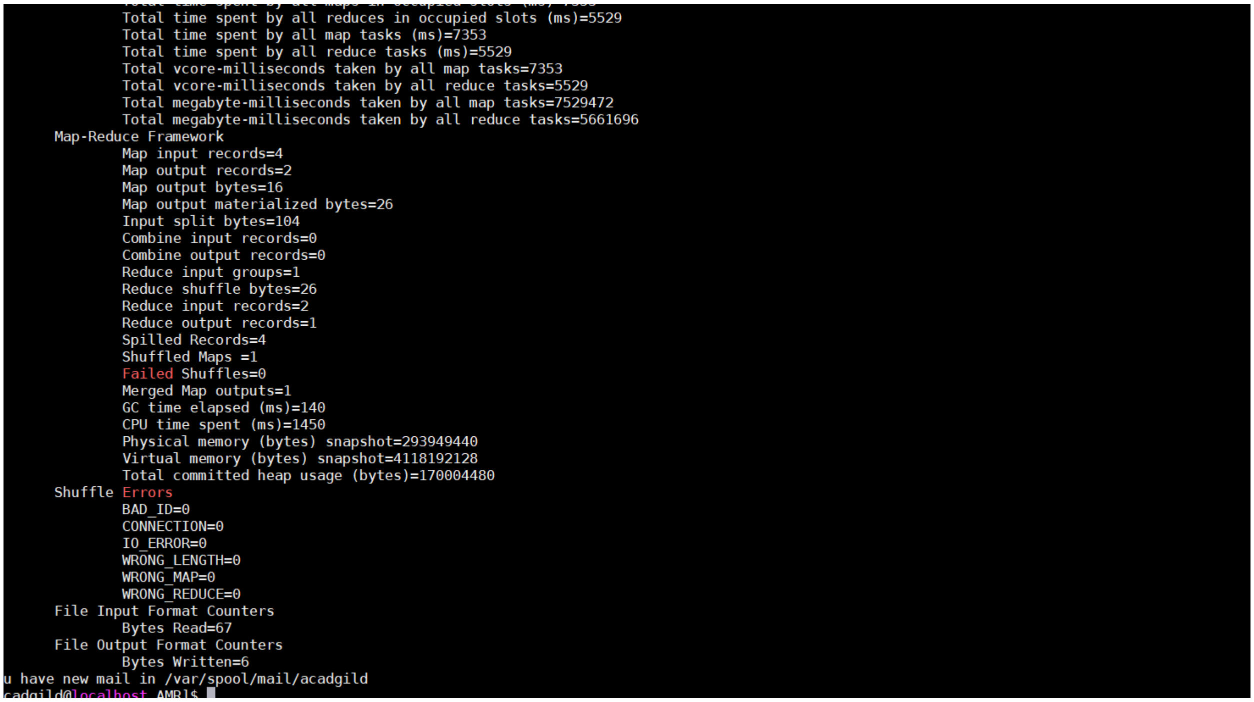
Now extract the jar file in to the local folder **/home/acadgild/Desktop/Practise/AMR/ Assignment5Task3.jar** and run it with the help of below command.

hadoop jar Assignment5Task3.jar

Now we will get the below output . Please find the screen shot for this.



```
[acadgild@localhost AMR]$ hadoop jar Assignment5Task3.jar
18/11/07 00:01:02 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
Usage: song <input file> <output dir>
Using default file: song.txt
18/11/07 00:01:04 INFO client.RMProxy: Connecting to ResourceManager at localhost/127.0.0.1:8032
18/11/07 00:01:05 WARN mapreduce.JobResourceUploader: Hadoop command-line option parsing not performed. Implement the Tool interface and execute your app
lication with ToolRunner to remedy this.
18/11/07 00:01:05 INFO input.FileInputFormat: Total input paths to process : 1
18/11/07 00:01:05 INFO mapreduce.JobSubmitter: number of splits:1
18/11/07 00:01:06 INFO mapreduce.JobSubmitter: Submitting tokens for job: job_1541525929008_0003
18/11/07 00:01:06 INFO impl.YarnClientImpl: Submitted application application_1541525929008_0003
18/11/07 00:01:06 INFO mapreduce.Job: The url to track the job: http://localhost:8088/proxy/application_1541525929008_0003/
18/11/07 00:01:06 INFO mapreduce.Job: Running job: job_1541525929008_0003
18/11/07 00:01:19 INFO mapreduce.Job: Job job_1541525929008_0003 running in uber mode : false
18/11/07 00:01:19 INFO mapreduce.Job:  map 0% reduce 0%
18/11/07 00:01:28 INFO mapreduce.Job:  map 100% reduce 0%
18/11/07 00:01:37 INFO mapreduce.Job:  map 100% reduce 100%
18/11/07 00:01:37 INFO mapreduce.Job: Job job_1541525929008_0003 completed successfully
18/11/07 00:01:38 INFO mapreduce.Job: Counters: 49
        File System Counters
                FILE: Number of bytes read=26
                FILE: Number of bytes written=216121
                FILE: Number of read operations=0
                FILE: Number of large read operations=0
                FILE: Number of write operations=0
                HDFS: Number of bytes read=171
                HDFS: Number of bytes written=6
                HDFS: Number of read operations=6
                HDFS: Number of large read operations=0
                HDFS: Number of write operations=2
        Job Counters
                Launched map tasks=1
                Launched reduce tasks=1
                Data-local map tasks=1
                Total time spent by all maps in occupied slots (ms)=7353
                Total time spent by all reduces in occupied slots (ms)=5529
                Total time spent by all map tasks (ms)=7353
                Total time spent by all reduce tasks (ms)=5529
                Total vcore-milliseconds taken by all map tasks=7353
                Total vcore-milliseconds taken by all reduce tasks=5529
```

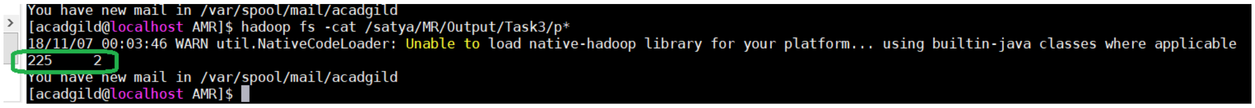


```
		Total time spent by all maps in occupied slots (ms)=7353
		Total time spent by all reduces in occupied slots (ms)=5529
		Total time spent by all map tasks (ms)=7353
		Total time spent by all reduce tasks (ms)=5529
		Total vcore-milliseconds taken by all map tasks=7353
		Total vcore-milliseconds taken by all reduce tasks=5529
		Total megabyte-milliseconds taken by all map tasks=7529472
		Total megabyte-milliseconds taken by all reduce tasks=5661696
	Map-Reduce Framework
		Map input records=4
		Map output records=2
		Map output bytes=16
		Map output materialized bytes=26
		Input split bytes=104
		Combine input records=0
		Combine output records=0
		Reduce input groups=1
		Reduce shuffle bytes=26
		Reduce input records=2
		Reduce output records=1
		Spilled Records=4
		Shuffled Maps =1
		Failed Shuffles=0
		Merged Map outputs=1
		GC time elapsed (ms)=140
		CPU time spent (ms)=1450
		Physical memory (bytes) snapshot=293949440
		Virtual memory (bytes) snapshot=4118192128
		Total committed heap usage (bytes)=170004480
	Shuffle Errors
		BAD_ID=0
		CONNECTION=0
		IO_ERROR=0
		WRONG_LENGTH=0
		WRONG_MAP=0
		WRONG_REDUCE=0
	File Input Format Counters
		Bytes Read=67
	File Output Format Counters
		Bytes Written=6
u have new mail in /var/spool/mail/acadgild
cadgild@localhost AMR]$
```

Now we will run the cat command to see the output.

As my output directory is **"/satya/MR/Output/Task3”, we can run below command to see the output**

hadoop fs -cat /satya/MR/Output/Task3/p*



```
You have new mail in /var/spool/mail/acadgild
[acadgild@localhost AMR]$ hadoop fs -cat /satya/MR/Output/Task3/p*
18/11/07 00:03:46 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
225	2
You have new mail in /var/spool/mail/acadgild
[acadgild@localhost AMR]$
```